Application No.: 09/343,684   Docket No.: 21029-00182-US

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS

1-9.   (Cancelled)

10.   (Currently amended) A system for controlling the melting of a glass batch in a glass melting furnace and comprising:

a plurality of sensors for detecting different types of operating conditions in a furnace;

means for creating, and analyzing images taken inside a furnace in accordance with a predetermined mathematical model;

a predictive network which, depending on the state of the furnace and information regarding changes in production over time, defines various set point values assigned to a plurality of furnace actuators of different types that affect a plurality of furnace operations;

means for storing operator set points corresponding to manual operation of furnace actuators under preselected conditions;

fuzzy logic controller means running a fuzzy logic control algorithm and connected at a plurality of respective inputs to the sensors, image means, predictive network, and operator set points storing means, the controller means generating a plurality of output signals for respective actuators that will control melting in the furnace in accordance with objectives defined by the operator set points; and

the predictive network further including means for learning operating laws of the furnace during a learning phase, wherein the learning means defines the laws of different types of furnace operation operations, selectively from actual furnace operation, or by simulation of furnace operation using a mathematical model.

11.   (Cancelled)

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12. (Previously presented) The system set forth in claim 10 wherein the means for creating, and analyzing images further comprises at least one video camera; and means for processing images obtained from the camera and producing information therefrom that is input to the algorithm.

13. (Previously presented) The system set forth in claim 10 wherein the predictive network delivers information for defining the set points that are to be applied to actuators.

15. (Previously presented) The system set forth in claim 12 wherein the camera is positioned in the furnace to observe the distribution of glass batch fed into the furnace, of the position of the batch piles and of their speed, and a plurality of parameters relating to the appearance of the batch as it melts on the surface of the glass melt.

16. (Previously presented) The system set forth in claim 12 wherein the camera is positioned in the furnace to observe the shape and distribution of flames from burners inside the furnace.

17. (Previously presented) The system set forth in claim 12 wherein the camera is positioned in the furnace to observe the movement of convection currents in the glass melt.

18. (Previously presented) The system set forth in claim 12 wherein the camera is positioned in the furnace to observe the operation of bubblers in the furnace.

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